

REMARKS

The Office Action dated June 1, 2009, has been received and carefully noted. The following remarks are submitted as a full and complete response thereto.

Applicants appreciate that the Office Action considered page 2 of 2 of the Information Disclosure Statement filed April 8, 2009. However, Applicants respectfully request that page 1 of 2 also be timely considered, since it was properly submitted. A courtesy copy of pages 1 and 2 of the PTO-1449 form are attached hereto.

Currently, claims 1-8 and 11-15 are pending of which claims 1 and 7 are independent claims. Claims 1-8 and 11-15 are respectfully submitted for consideration.

Claims 1, 3, 7, 8 and 12 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 3,841,126 of Minami *et al.* (“Minami”) in view of U.S. Patent No. 4,230,270 of Poret (“Poret”). The Office Action seems to acknowledge that Minami does not disclose “at least one of the spraying with lubricant operations being conducted when the lubricant spraying in a preceding spraying operation has been dried,” as recited in claim 1, or the similar recitations of claim 7. The Office Action cited Poret to remedy the deficiencies of Minami. Applicants respectfully traverse this rejection.

Claim 1, upon which claims 2-6 depend, is directed to a forging method including a plurality of press operations to form a product. The method also includes spraying a workpiece with lubricant more than once, said workpiece already having been heated due to a machine related earlier press operation prior to a press operation of forming the workpiece is conducted, at least one of the spraying with lubricant operations being

conducted when the lubricant sprayed in a preceding spraying operation has been dried. The method further includes, after the lubricant sprayed in a final spraying of said workpiece has been dried, forming the workpiece via said press operation.

Claim 7, upon which claims 8 and 12-15 depend, is directed to a forging apparatus including an extruding apparatus that comprises a plurality of press stages, wherein a workpiece is successively transferred to the plurality of press stages of the extruding apparatus. The forging apparatus also includes a conveying unit for successively transferring the workpiece comprises a plurality of nozzles for spraying the workpiece with lubricant. The workpiece and the plurality of nozzles are located in fixed relative positions with respect to each other in spraying the workpiece with the lubricant. Lubricant is sprayed from the plurality of nozzles in different directions and the nozzles spray the lubricant in a sequential fashion. After the lubricant sprayed from the plurality of nozzles has been dried, more lubricant is again sprayed from the nozzles; or, after the lubricant sprayed from one of the nozzles has been dried, more lubricant is again sprayed from another of the nozzles.

Applicants respectfully submit that the combination of Minami and Poret fails to disclose or suggest all of the elements of any of the presently pending claims.

As noted previously (in the Response filed February 23, 2009), Minami discusses a method of lubricating a workpiece (wire) in a warm forging process. As can be seen from Figure 1 and the corresponding discussion at columns 5 and 6 of Minami, a workpiece (wire) 1 is fed to a bending roller 4 and is then provided to a brush roller 5,

which descales the wire. Nozzle(s) 6 then dusts off the debris from the wire, which is then fed to a lubricant spark preventer 9, which provides a spark preventer substance via a “bath” process (*i.e.*, not a spraying operation) (see column 5, line 44, of Minami). The wire is then shaved via shaver 10, wound-up via winder 16, straightened via straightening device 18, and heated-up via heaters 19 and 20. The wire is then sprayed with lubricant via one or more of nozzles 34.1, 34.2 and 34.3 of spraying unit 34.

In Minami, nozzle 34.2 is used to replace/supplement nozzle 34.1 when spraying lubricant on the wire 1. Nozzle 34.3 serves to apply lubricant to the cut surface of the material and the engaging pieces of the punches 26 and 26' (see Figure 3 and column 6, lines 35-40, of Minami). The nozzles 34.1, 34.2 and 34.3 appear to spray lubricant onto the workpiece in a continuous and otherwise joint spraying procedure. In other words, Minami does not disclose “at least one of the spraying with lubricant operations being conducted when the lubricant sprayed in a preceding spraying operation has been dried,” as recited, in part, in independent claim 1.

The Office Action appears to have admitted that Minami fails to disclose or suggest “at least one of the spraying with lubricant operations being conducted when the lubricant sprayed in a preceding spraying operation has been dried,” as recited in independent claim 1 and similarly in independent claim 7 (see page 3, paragraph 11, of the Office Action). Poret, however, does not cure those deficiencies of Minami with respect to the pending claims.

Poret discusses that certain problems associated with spray nozzles include complexity of the tool surfaces and spray angles, blockage and stoppage accumulating in a spray nozzle, and having to make delicate adjustments to change the nozzle controls, *etc.* (see column 1, lines 45-60, of Poret). Poret discloses a multinozzle block (nozzles 9) that provide several spray passages which may have various different spray angles, as can be seen at Figure 1 of Poret. According to Poret, implementing time and pressure controls can provide “assuring laminar flow of the spray liquid.” Furthermore, “the rinsing circuit incorporated in the block is actuated during machine cycling and before stopping the machine. In this way, any deposits of spray material are ‘washed away’ and no blockage can develop by drying or evaporation during prolonged system stops” (see column 2, lines 45-55, of Poret).

As noted above, Poret is directed to a nozzle management system that uses timing and pressure controls to reduce the likelihood of nozzle clogging (*i.e.*, “stoppage”). There is no disclosure of any spraying operations being performed multiple times on a single workpiece. Furthermore, there is no disclosure of waiting until a previous spraying operation has dried before spraying the same workpiece again. In attempting to rely on Poret to teach the deficiencies of Minami, the Office Action has relied on column 1, lines 21-41, of Poret. Applicants respectfully disagree that the cited portion or any other portion of Poret remedies the deficiencies of Minami.

At column 1, lines 21-41 of Poret, a brief statement is made regarding “coating operations.” Given the context of this portion of the background information of Poret,

this appears to be a general statement that is referring to coating operations in general, and not to performing multiple coating operations, and, certainly not, performing multiple coating operations on the same workpiece, as recited in the pending claims. Furthermore, Poret is merely defining the arrangement of French Patent No. 2,044,311, which is an automated process that is difficult to reconfigure or keep from encountering “stoppage.” This portion of Poret’s disclosure, therefore, does not disclose or suggest “at least one of the spraying with lubricant operations being conducted when the lubricant sprayed in a preceding spraying operation has been dried,” as recited, in independent claim 1 and similarly in independent claim 7.

Referring to other portions of Poret, column 2, line 53, of Poret, only briefly mentions “drying” in a manner that is inconsistent with the claims of the present application. For example, it appears that Poret is referring to instances of drying when the spraying system has not been operating for long periods of time. In these instances, the nozzle and not the workpiece is what becomes dry over elapsed time. There is no reference made to multiple spraying operations and certainly not to performing a spraying operation after a previous coat of lubricant has dried. There is no disclosure or suggestion anywhere in Poret’s disclosure that a second or subsequent spraying operation has occurred when the previous spraying operation has dried.

Accordingly, it is respectfully submitted that the rejections of claims 1 and 7 are improper and should be withdrawn. Claims 3, 8, and 12 depend respectively from, and further limit, claims 1 and 7. Thus, claims 3, 8, and 12 also recite subject matter that is

neither disclosed nor suggested by the combination of Minami and Poret. Withdrawal of the rejection of claims 3, 8, and 12 is respectfully requested.

Claims 2, 5, 6, 11, 14 and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Minami and Poret as applied to claims 1 and 7 above, and further in view of U.S. 2003/0213277 of Nagao (“Nagao”). The Office Action took the position that Minami and Poret disclose all of the features of the claims except for a constant-velocity universal joint outer race or other features of the rejected claims. The Office Action then relied on Nagao to cure the deficiencies of Minami and Poret. Applicants respectfully traverse this rejection.

As noted previously (in the Response of February 23, 2009), Nagao discusses a forging die apparatus that includes a punch for applying a pressurizing force to a forging material arranged in a cavity. A cylindrical member is installed to surround a part of the outer circumference of the punch to provide displacement with the punch. The apparatus also includes a first ring member formed with a hole for forcibly inserting the cylindrical member into the hole when the punch applies a pressurizing force to the forging material.

Nagao does not disclose “at least one of the spraying with lubricant operations being conducted when the lubricant sprayed in a preceding spraying operation has been dried,” as recited in independent claim 1 and similarly in independent claim 7. Therefore, because Nagao fails to cure the deficiencies of claims 1 and 7 with respect to Minami, then, Nagao also fails to disclose the features of claims 2, 5, 6, 11, 14 and 15

which are dependent on independent claims 1 and 7. Withdrawal of the rejection is respectfully requested.

Claims 4 and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Minami and Poret as applied to claims 1 and 7 above, and further in view of U.S. 5,493,886 of Graham (“Graham”). The Office Action took the position that Minami and Poret disclose all of the features of the claims except for a water dispersive lubricant. The Office Action then relied on Graham to cure the deficiencies of Minami. We propose traversing this rejection.

Graham discloses a method to lubricate a metal workpiece at elevated temperatures by employing a polymer lubricant. The lubricant is provided with a liquid mist of a vaporizable and polymerizable organic reactant being supplied to both a workpiece and a forming die at elevated working temperatures. Graham does not disclose “at least one of the spraying with lubricant operations being conducted when the lubricant sprayed in a preceding spraying operation has been dried,” as recited in independent claim 1 and similarly in independent claim 7. Therefore, Graham does not cure the deficiencies of claims 1 and 7 with respect to Minami. Thus, Graham also fails to disclose the features of claims 4 and 13 which are dependent on independent claims 1 and 7. Withdrawal of the rejection is respectfully requested.

For the reasons set forth above, it is respectfully submitted that each of claims 1-8 and 11-15 recites subject matter that is neither disclosed nor suggested in the cited art. It

is, therefore, respectfully requested that all of claims 1-8 and 11-15 be allowed, and that this application be passed to issuance.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, Applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,


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Enclosure: Copy of pages 1 and 2 of the PTO-1449 form filed on April 8, 2009